

CLAIMS

1. A piezoelectric transformer operating in a half wavelength mode, comprising:

an input part having input electrodes laminated in a thickness direction on a central part in a longitudinal direction of a piezoelectric element with rectangular shape;

a pair of output parts provided so as to sandwich said input part along said longitudinal direction; and

an output electrode provided at an end part of each of said output parts,

wherein said input part is polarized in the thickness direction between the input electrodes, and said output parts are polarized in the same direction along said longitudinal direction; and

wherein L_1 , L_2 and L_3 satisfy a relation of $0.1 \leq (4L_2 - L_3)/4L_1 \leq 0.5$, where L_1 is a length of said piezoelectric element in its longitudinal direction, L_2 is a length of said input part in said longitudinal direction, and L_3 is a length of either one of said output electrodes in said longitudinal direction.

2. The piezoelectric transformer according to claim 1, wherein said output electrodes are formed only at end faces of said respective outputs, and L_1 and L_2 satisfy the relation of $0.1 \leq L_2/L_1 \leq 0.5$, where L_1 is the length in said

longitudinal direction of said piezoelectric element and L_2 is the length in said longitudinal direction of said input part.

3. The piezoelectric transformer according to claim 1, wherein said output electrode is laminated at an inner layer part of said piezoelectric element in a thickness direction at the end part of said respective output parts.

4. The piezoelectric transformer according to claims 1 to 3, wherein external electrodes connecting to said input electrodes are provided at least on outer face of said input part which is parallel to both said longitudinal direction and thickness direction, and external electrodes connecting to said output electrodes are provided on, at least, both end faces of said respective output parts or on one of outer faces of said output part which are parallel to both said longitudinal direction and thickness direction.